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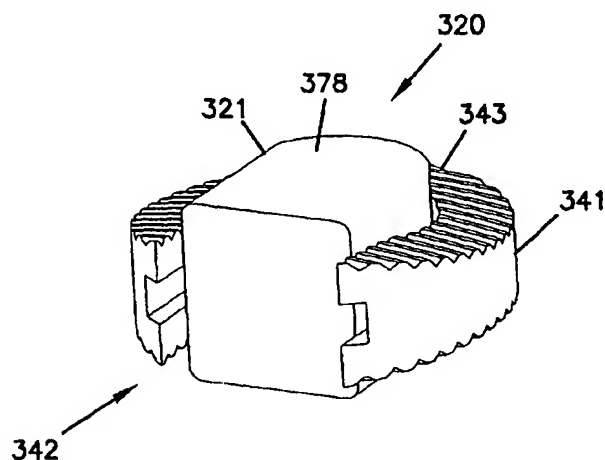
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LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
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[Continued on next page]

(54) Title: BONE IMPLANTS AND METHODS



(57) Abstract: The disclosure provides implants, instruments and methods for bone fusion procedures. In some embodiments, the implants are particularly advantageous for use between opposing vertebral bodies to facilitate stabilization or arthrodesis of an intervertebral joint. The implants include, at least, a support component that provides structural support during fusion. In a typical embodiment, the implants also include a growth component. A growth component provides an environment conducive to new bone growth between the bones being fused. Several unique configurations to enhance fusion, instruments for insertion and methods for insertion are also disclosed.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 02/05314

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61F2/44 A61F2/28 A61F2/46 A61B17/16 A61B17/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61F A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 17209 A (HOECK JAMES E VAN ;SDGI HOLDINGS INC (US); BOYD LAWRENCE M (US); M) 30 April 1998 (1998-04-30) claims 56-60; figures 3-6,18-20,24-33,38-49; examples 5-7 page 19, line 18 - line 26 page 21, line 31 -page 22, line 15 page 25, line 34 -page 26, line 11 page 28, line 23 -page 29, line 26	1-8, 15-19, 21-23
Y A	--- -/--	34-38 10-14

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the International filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00 41654 A (SDGI HOLDINGS INC ;BOYD LAWRENCE M (US); DORCHAK JOHN D (US); BURK) 20 July 2000 (2000-07-20) claims 1-5,8-11,36-38; figures 14,15 page 3, line 16 - line 19 page 16, line 3 - line 8 page 18, line 16 - line 21 page 24, line 29 -page 25, line 4	1-4,9,15
A	---	19,21, 22,34, 36,37
X	US 4 950 296 A (MCINTYRE JONATHAN L) 21 August 1990 (1990-08-21) claim 1; figures	1-8
X	---	
X	WO 01 08714 A (REGENERATION TECHNOLOGIES INC) 8 February 2001 (2001-02-08) figures 4-8; examples 9,10,13 page 22, line 1 -page 23, line 25	1,2,4,8, 15
A		6,7,17, 19,21,22
Y	---	
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A		1
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P,X	WO 02 03867 A (SULZER SPINE TECH INC ;SEME STEVEN J (US); HANSON DAVID A (US); LO) 17 January 2002 (2002-01-17) claim 47; figures 40-49 page 16, line 16 - line 18 page 19, line 11 - line 20 -----	1-19, 21-23, 34-38

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 02/05314

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 47-57
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-19, 21-23, 34-38

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-19, 21-23, 34-38

A bone implant comprising:
a support member sized for intervertebral implantation, defining a cavity having an open end positioned opposite from a closed end; and
a growth member, having a premanufactured shape, sized to be inserted into the cavity of the support member through the open end of the cavity after implantation of the support member.

(Problem: Providing immediate improved stability for the spine through the support member and allowing non destructive insertion of a growth member after implantation of the support member, for reaching longterm stability of the implant in the intervertebral space through bone ingrowth into the growth member)

2. Claims: 20, 24-33, 34-38

A bone implant comprising:
a support member sized for intervertebral implantation, defining a channel having an open end and a closed end, the channel being defined by opposing inner wall surfaces having opposing slots extending from the open to the closed end of the channel.

(Problem: Secure and easy engagement of an insertion tool into an implant by providing slots on the walls of an implant for the rails of the head of an insertion tool)

3. Claim : 39

A generally horseshoe-shaped spinal implant and;
a rasp for preparing vertebral implants for insertion having a corresponding horseshoe-shaped rasping head.

(Problem: Preparing a correctly sized bed in the bone for a horseshoe-shaped implant)

4. Claims: 40-45

An implant system comprising:
a rasp including a head and a shaft; and
a chisel, for chiseling vertebral bodies, the chisel defining an inner passage for receiving the shaft of the rasp.

(Problem: Enabling easy preparation of a whole in a

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

vetrebral body through a combined chisel and rasp process)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 02/05314

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